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NOVEMBER FLOWERS.

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IN records of seasonal occurrence, it will be found that more attention has been given to the beginning than to the end of the season. The finding of the first flower of the year of any species, the first hearing of the song of some bird, is an inspiring event, but after we have seen one and heard the other for months, the closing record is less interesting. Again, the latter is more difficult to obtain, and to be sure of the date of the fading of the last flower, the departure of the last bird of a species, is impossible. When you gather your first *Hepatica*, hear your first bluebird, you can make your record, and that is all there is to be done about it; but if you see a wild rose on the first of November, you must continue to watch for wild roses all through the month, and then feel that there were probably some that you did not see. But though no final date can be given with certainty, a list of species observed in some period at the close of the season, may show some interesting details. A list of this kind was made by the late Bradford Torrey, and will be found in his volume of pleasant and at the same time accurate nature studies, *A Rambler's Lease*, published in 1890. It appeared previously like most of the other essays in the volume in the *Atlantic Monthly*. It gives a list of plants that he found in bloom in the open in November, 1888, as also notes on butterflies and birds observed during the month. I have often thought that it would be interesting to compare a similar list of flowers in November of some other year, and see in what proportion the species were the same. I had been unable to make up such a list, as in the case of a man whose occupation demands a day's work every week day, while

he can in the spring welcome the coming guest before and after the time when the whistle blows, literally or metaphorically, there is no daylight for speeding the parting guest in the autumn. Once, on November 4, 1900, when riding on my bicycle from Malden to Revere Beach and back, I made note of the flowers I saw in bloom, conspicuous enough to be visible as I went by; there were 22, not counting two manifestly different "mustards" that I did not recognize specifically.

In November, 1913, for the first time I was able to give some day-time, every day, to making notes of this kind, and the present paper is the result of these notes, and similar ones in November, 1914, in the town of Eastham, Barnstable County, Massachusetts. In each year I was away from Eastham part of the month; in 1913 the observations cover the period from the seventeenth to the thirtieth, in 1914 from the first to the twentieth. Mr. Torrey records finding some species only in a single limited station, and it is of course probable that similar stations for other species were overlooked, both in his case and in mine; completeness in such matters is impossible. Mr. Torrey's list is given by common names, "omitting Latin titles,—somewhat unwillingly, I confess—" he says, but I think I have rightly identified all the species except one, "common blue violet"; one looks back with a mild melancholy to the good times, now gone forever, when there was such a thing as the "common blue violet."

In the following tabulation all the species observed by Mr. Torrey and myself are in a single list, in the order of the Manual Check List; there are four vertical columns at the right; a check in the first indicates the presence of the species in Mr. Torrey's November, 1888 list; in the second column, its occurrence in November, 1913; in the third, its occurrence in November, 1914; in the fourth column are indicated the species that were able, by the unusually mild weather of the close of 1913, to continue blooming into December of that year.

	Nov. '88	Nov. '13	Nov. '14	Dec. '13
<i>Spiranthes cernua</i>	+			
<i>Polygonella articulata</i>	+		+	
<i>Polygonum aviculare</i>	+	+	+	
<i>Polygonum Persicaria</i>			+	
† <i>Chenopodium carinatum</i>			+	
<i>Phytolacca decandra</i>			+	

	Nov. '88	Nov. '13	Nov. '14	Dec. '13
Scleranthus annuus	+	+	+	+
Mollugo verticillata			+	
Cerastium vulgatum	+		+	
Dianthus Armeria	+			
Saponaria officinalis			+	
Spergula arvensis		+	+	+
Spergularia rubra	+		+	
Stellaria media	+			
Delphinium Consolida	+			
Ranunculus acris	+	+		
Ranunculus repens	+			
Chelidonium majus	+			
* Corydalis sempervirens	+			
Brassica arvensis		+	+	+
Brassica Napus		+	+	
Cakile edentula	+		+	
Capsella Bursa-pastoris	+	+	+	+
Lepidium virginicum	+	+	+	+
Raphanus Raphanistrum	+			
Sisymbrium altissimum			+	
Sisymbrium officinale var. leiocarpum	+			
* Hamamelis virginica	+			
* Geum canadense	+			
Potentilla argentea	+		+	
Potentilla canadensis	+			
Rosa virginiana			+	
Baptisia tinctoria			+	
Medicago lupulina	+			
* Melilotus alba	+			
Trifolium hybridum	+		+	
Trifolium pratense	+	+	+	+
Trifolium repens	+			
Erodium cicutarium	+	+	+	+
* Geranium Robertianum	+			
Malva rotundifolia	+	+	+	+
* Viola pedata	+			
* Viola tricolor	+			
Oenothera muricata	+		+	
* Oenothera pumila	+			
Daucus Carota	+		+	
Limonium carolinianum			+	
Anagallis arvensis			+	
* Gentiana crinita	+			
Leonurus cardiaca	+		+	

	Nov. '88	Nov. '13	Nov. '14	Dec. '13
<i>Prunella vulgaris</i>	+			
<i>Linaria canadensis</i>	+	+	+	+
<i>Linaria vulgaris</i>	+		+	
* <i>Campanula rapunculoides</i>	+			
<i>Achillea Millefolium</i>	+	+	+	+
<i>Ambrosia artemisiifolia</i>			+	
<i>Anaphalis margaritacea</i>	+			
<i>Antennaria plantaginifolia</i>	+			
<i>Anthemis Cotula</i>	+		+	
<i>Arctium minus</i>	+			
* <i>Aster cordifolius</i>	+			
* <i>Aster divaricatus</i>	+			
* <i>Aster lateriflorus</i>	+			
<i>Aster ericoides</i>		+	+	+
<i>Aster linariifolius</i>	+		+	
* <i>Aster multiflorus</i>	+			
<i>Aster novi-belgii</i>	+		+	
<i>Aster patens</i>		+	+	
* <i>Aster puniceus</i>	+			
* <i>Aster vimineus</i>	+			
* <i>Aster undulatus</i>	+			
<i>Chrysanthemum Leucanthemum</i> var. <i>pinnatifidum</i>		+	+	
† <i>Chrysopsis falcata</i>		+	+	+
<i>Cirsium arvense</i>	+			
<i>Cirsium discolor</i>		+	+	
<i>Erigeron canadensis</i>	+		+	
<i>Erigeron ramosus</i>	+		+	
<i>Gnaphalium polycephalum</i>	+	+	+	
<i>Leontodon autumnalis</i>	+		+	
<i>Rudbeckia hirta</i>	+			
<i>Senecio vulgaris</i>	+	+	+	+
<i>Solidago bicolor</i>	+			
* <i>Solidago caesia</i>	+			
* <i>Solidago canadensis</i>	+			
* <i>Solidago juncea</i>	+			
<i>Solidago nemoralis</i>	+	+	+	+
<i>Solidago rugosa</i>	+			
<i>Solidago sempervirens</i>	+	+	+	
<i>Sonchus asper</i>			+	
<i>Sonchus oleraceus</i>	+			
<i>Tanacetum vulgare</i>	+			
<i>Taraxacum officinale</i>	+		+	

The 92 species in the list represent 26 families; *Compositae* with 38 species, *Cruciferae* with 8, *Caryophyllaceae* with 6, *Leguminosae* with 5, *Rosaceae* with 4, no other with more than 3. The *Compositae* are especially a family of autumn plants with us, and their predominance is not unnatural, though the extreme predominance may be somewhat surprising, 41 per cent, against 13 per cent of the flowering plants in Gray's Manual. The monocotyledons have only one species, the trees one species; both these in the Torrey list, neither in mine. Of the 92 species, 40 are introduced, being 43 per cent; if we exclude the *Compositae* with the asters and golden rods, all native, 55 per cent are introduced species; only 17 per cent of the flowering plants in the Manual are introduced. Two reasons may be suggested for their predominance; immigrants that have established themselves probably represent the few hardy and persistent species among the many that have at some time or other landed on our shores, and perhaps taken out their first papers, but never secured citizenship. Many of these species come from lands where the season of vegetation is longer than with us; they have not completed what would be their normal period at home at a time when native plants are quite through for the year. Two plants have seemed to me good instances of this latter condition; *Senecio vulgaris* and *Erodium cicutarium*. Little is seen of either at midsummer, but they are conspicuous in early spring and late autumn; and at any time through the winter a few warm days will bring them out.

Some of my species are in the list on single observations, and Mr. Torrey notes the same as to some of his; but with others, the case was different; they came not as spies, but whole battalions. *Aster ericoides*, which Mr. Torrey did not see at all, was very abundant in Eastham the first part of November; I saw fields showing white with it at quite a distance. Large plants of *Cirsium discolor* were frequent, mostly out of bloom and even the seeds gone, but still a few perfect heads on each, and here and there an individual quite in full bloom. Three times I saw *Rosa virginiana*, only a single flower each time, but that as perfect as in June. Two plants in Mr. Torrey's list, *Viola pedata* and *Antennaria plantaginifolia*, may be considered as precocious rather than belated, none in my list.

Mr. Torrey's list had Wellesley for a center, but covered quite an area; six species, he states, he did not collect himself, but they were contributed by a friend whose collecting extended into Essex County.

Two, *Delphinium Consolida* and *Viola tricolor*, were manifestly garden escapes. My own list covers Eastham only, about seven square miles. His list covers a much greater area in a more fertile region; as a slight offset may be reckoned that the climate at Eastham is milder than that at Boston; in the autumn of 1914 the Dahlias here were in excellent condition after those at Boston, and even on the Buzzard's Bay shore of the Cape, were destroyed by the frost. In the list I have put a star (*) at the left of the name in each case where a species reported by him is not to be expected in my region, and a dagger (†) to indicate the reverse. Of these species, it will be seen, there are twenty and two respectively. This leaves seventy species that might be expected in both regions; of these he found twenty-one that I did not, I found eighteen that he did not; thirty-one species we both found, a sufficiently large proportion, it seems to me, to show that certain species have the capacity to continue flowering as long as weather conditions permit, while others, whose flowering season begins no earlier, have a definite time for getting through, with little regard to conditions of temperature. No grasses were included in Mr. Torrey's list and I do not know whether he noticed grasses. I found three species, one native and two introduced; *Spartina patens*, *Bromus tectorum* and *B. hordeaceus* were in flower in Eastham in November, 1914.

That these lists are by no means complete may be judged from the fact that in going over my "bicycle" list, referred to above, I find that I noticed three species that do not appear in the table I have given; *Trifolium arvense*, *Cichorium Intybus* and *Artemisia caudata*. If lists could be made out for other localities, a comparison might lead to definite conclusions; it is to be hoped that the opportunity may come to some readers of RHODORA, and be improved by them.

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